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#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <unistd.h>
#include <arpa/inet.h>
#include <sys/socket.h>

typedef struct packet{
    char data[1024];
}Packet;

typedef struct frame{
    int frame_kind; //ACK:0, SEQ:1 FIN:2
    int sq_no;
    int ack;
    Packet packet;
}Frame;

int main(int argc, char **argv){
    if (argc != 2){
        printf("Usage: %s <port>", argv[0]);        exit(0);
    }
    int port = atoi(argv[1]);
    int sockfd;
    struct sockaddr_in serverAddr;
    char buffer[1024];
    socklen_t addr_size;
    int frame_id = 0;
    Frame frame_send;
    Frame frame_recv;
    int ack_recv = 1;
    sockfd = socket(AF_INET, SOCK_DGRAM, 0);

    memset(&serverAddr, '\0', sizeof(serverAddr));
    serverAddr.sin_family = AF_INET;

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serverAddr.sin_port = htons(port);
serverAddr.sin_addr.s_addr = inet_addr("127.0.0.1");

while(1){

    if(ack_recv == 1){

        frame_send.sq_no = frame_id;

        frame_send.frame_kind = 1;

        frame_send.ack = 0;

        printf("Enter Data: ");

        scanf("%s", buffer);

        strcpy(frame_send.packet.data, buffer);

        sendto(sockfd, &frame_send, sizeof(Frame), 0, (struct
sockaddr*)&serverAddr, sizeof(serverAddr));

        printf("[+]Frame Send\n");

    }

    int addr_size = sizeof(serverAddr);

    int f_recv_size = recvfrom(sockfd, &frame_recv, sizeof(frame_recv),
0, (struct sockaddr*)&serverAddr, &addr_size);

    if( f_recv_size > 0 && frame_recv.sq_no == 0 && frame_recv.ack ==
frame_id+1){

        printf("[+]Ack Received\n");

        ack_recv = 1;

    }else{

        printf("[-]Ack Not Received\n");

        ack_recv = 0;

    }

    frame_id++;

}

close(sockfd);

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return 0;
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}
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